

Amendments to the Claims

This listing of claims replaces all prior versions and listings of claims in this application.

Listing of Claims:

1. (Currently Amended) A residual current device (RCD) including means for sensing a differential current flowing in mains supply live and neutral conductors and for disconnecting the supply from a load when the differential current exceeds a predetermined level, the device further including a circuit means for detecting a double grounded neutral fault, said detection means comprising a circuit connecting the live and neutral conductors on the load side of the sensing means substantially without inductive coupling to the live and neutral conductors such that means for causing a current is caused to flow between the live and neutral conductors, such-said current being, at least intermittently, of sufficient amplitude and duration as to cause disconnection of the supply in the presence of a double grounded neutral as a result of a reduction in the amplitude of said current flowing through by the component of the current detected by the sensing means caused by a portion of said current flowing through the grounded neutral on the load side of the sensing means in the presence of a double grounded neutral.
2. (Currently Amended) An RCD as claimed in claim 1, wherein the said current is alternately on and off, the amplitude and duration of the said current during each on period being sufficient to cause said disconnection.
3. (Currently Amended) An RCD as claimed in claim 1, wherein the said current alternates between periods of relatively higher and lower amplitude, the amplitude and duration of the said current in each higher amplitude period being sufficient to cause said disconnection.
4. (Currently Amended) An RCD as claimed in claim 2, wherein the periods for which the said intermittent current flows is determined by a timing circuit powered from the live and neutral conductors.

5. (Original) An RCD as claimed in claim 4, wherein the timing circuit forms part of a single integrated circuit which also responds to a residual current above the predetermined level to initiate the disconnection of the supply.
6. (Currently Amended) An RCD as claimed in claim 1, wherein the-said current flows continuously through an impedance connected between the live and neutral conductors.
7. (Original) An RCD as claimed in claim 6, wherein the impedance is substantially reactive.
8. (Original) An RCD as claimed in claim 6, wherein a thermal switch is connected in series with the impedance.
9. (Currently Amended) An RCD as claimed in claim 1, further including means for providing a visual indication when the-said current is flowing.
10. (Original) An RCD as claimed in claim 1, wherein the double grounded neutral detection means is contained in a common housing with the sensing means.
11. Canceled.